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The Decline of Lexical and Grammatical Knowledge over Time in Bilingual Nonfluent Primary Progressive Aphasia (nfPPA)

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Introduction

The organization of two languages in the brains of bilingual individuals remains intriguing despite widespread research activity during the past decade. Some have argued that both lexical and grammatical processing show the same pattern of deterioration in the languages of bilingual patients (e.g., Miozzo et al., 2010). However, languages tested to support this claim were too similar. The situation may be different if the languages of the bilingual patient have little overlap.

Our study tested the thesis of Ullman (2001) that argues that grammatical processing of L2 takes place in declarative memory, whereas of L1, in procedural memory. Given independent systems for grammatical processing in L1 and L2, bilingual aphasia may lead to dissociable patterns of impairment in L1 and L2. Lexical processing, however, taking place in declarative memory in both L1 and L2, will take similar course in both languages.

To test the hypothesis, we studied a bilingual patient with nfPPA. We compared patterns of language decline in single word processing, syntactic comprehension and morphosyntactic production and comprehension, and observed the impact of language status (L1 and L2).

Case Study

JB's first language was Hungarian. He came to England at the age of 14. His pre-morbid English was excellent. During the period of investigation, JB's verbal output progressed from dysfluent speech with phonemic errors, to effortful production of a restricted set of phonemes. His comprehension remained unaffected for a long time, and he performed well in tests of memory, perception, and semantics.

Results and Conclusion

Testing was carried out in two periods. Results are in Table 1. The key results are effects of language status (L1 > L2), word class (objects > actions), modality (comprehension > production) and time (T1 > T2). The deterioration in most tasks showed an overlapping pattern in L1 and L2. Performance in syntactic comprehension, however, was different in L1 (unimpaired) and L2 (impaired).

The results support the hypothesis that deterioration to lexical processing in L1 and L2 converges, whereas deterioration to syntactic and morpho-syntactic processing diverges in languages with different grammatical structure. Language status has an impact on performance: L2 is more prone to impairment than L1. Despite his limited contact with Hungarian, JB was unimpaired on grammatical tasks in Hungarian, whereas he was impaired

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on virtually all tests of grammar in English. These results require a model that assumes primary role for age of acquisition, rather than language exposure, in predicting the pattern of language deterioration.

References

Miozzo, M. Costa, A. Hernandez, M. & Rapp, B.(in press). Lexical processing in the bilingual brain: Evidence from grammatical and morphological deficits. *Aphasiology*.

Perani, D. & Abutalebi, J. (2005). The neural basis of first and second language processing. *Current Opinion in Neurobiology,* 15, 202-206.

Ullman, M. (2001). The neural basis of lexicon and grammar in first and second language: the declarative/procedural model. *Bilingualism: Language and Cognition*, 4, 105-122.